

SUPPORT FOR THE AMENDMENTS

This Amendment amends Claim 1. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in the specification at least at page 5, lines 3-5. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-7 will be pending in this application. Claims 1 and 2 are independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the courtesies extended to their representative during the November 2, 2005, personal interview.

As discussed at the personal interview, the present invention provides a pressure sensor including a semiconductor device capable of detecting pressure; a bonding wire; a terminal that is connected to the semiconductor device by the bonding wire; and a housing having an accommodation space accommodating the semiconductor device, the bonding wire and the terminal, where the terminal and the housing are sealed by a fluorine-based adhesive. In a first embodiment a silicon-based oil working fluid is sealed in the accommodation space. In a second embodiment no working fluid is provided.

Some conventional pressure sensors include a fluorine-based oil as a working fluid and a silicone-based adhesive sealing the terminal and the housing. Other conventional pressure sensors include a fluorine-based gel as a working fluid and a fluorine-based adhesive. Specification at page 1, lines 12-22; page 2, lines 3-12.

However, fluorine-based oils and fluorine-based gels are expensive as working fluids. It would be desirable to replace these expensive working fluids with low cost working fluids, such as silicone-based oils. However, a silicone based-oil will cause a silicone-based adhesive to swell and will degrade the seal between the terminal and the housing. Specification at page 2, lines 20-27.

The present invention overcomes the high-cost and durability problems of conventional pressure sensors by using a silicone-based oil as the working fluid, or no working fluid; and by using a fluorine-based adhesive between the terminal and the housing. In embodiments where a silicone-based working fluid is used, swelling and degradation of the seal between the terminal and the housing is prevented due to the joint characteristics of the fluorine-based adhesive and the silicone-based oil. Specification at page 5, lines 3-10. In embodiments where no working fluid is used, particularly low manufacturing costs can be achieved. Specification at page 6, lines 12-13. As a result, the present invention provides a pressure sensor having high sensitivity and durability at a low manufacturing cost. Specification at page 3, lines 1-4; page 5, lines 3-10.

Claims 1-2 and 5-7 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 6,085,598 ("Baba"). In addition, Claims 3-4 are rejected under 35 U.S.C. § 103(a) over Baba.

Baba discloses a conventional pressure sensor in which terminal 10 and housing 6 are sealed by a heat hardened silicone gel 18, and fluorine-based adhesives 16, 16a and 16b fix sensor element 15 in cavity 6a. Baba at column 4, lines 28-47; Figs. 2, 3A-3C.

However, Baba fails to suggest the limitation of independent Claims 1 and 2 that "the terminal and the housing are sealed by a fluorine-based adhesive". When exposed to a silicone-based working fluid, the fluorine-based adhesive reduces, relative to a silicone-based adhesive, swelling of the adhesive and loss of adhesivity. Specification at page 5, lines 3-10.

Baba also discloses that an inlet port 3 introduces pressure to be measured (e.g., gasoline vapor pressure) into a sensor portion 2, and that another inlet port 4 introduces atmospheric pressure as a reference pressure. Baba at column 3, lines 62-64; column 4, lines 14-16.

However, Baba fails to suggest the independent Claim 1 limitation that "the working fluid is a silicone-based oil".

Because Baba fails to suggest all of the limitations of independent Claims 1 and 2, the rejections over Baba should be withdrawn.

Pursuant to M.P.E.P. § 821.04, after independent product Claims 1-2 are allowed, Applicants respectfully request examination and allowance of method Claims 6-7, which include all of the limitations of product Claims 1-2, respectively.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.


Respectfully submitted,

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